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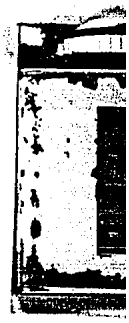

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SOURCE As indicated

REDUCTION IN FUEL CONSUMPTION OF USSR ELECTRIC POWER INSTALLATIONS

/Numbers in parentheses refer to appended sources./

Further Economy in Operation of Electric Power Stations Urged

The directives of the 19th Party Congress on the Fifth Five-Year Plan pointed out the need for observing strict economy, for utilizing industrial reserves, for utilizing more fully the capacity of equipment, and for systematically improving methods of production.

Along with the rest of the country, the power specialists, following party and government instructions, have achieved some success in reducing the operating costs of electric power stations.

From year to year electric power stations are improving their efficiency indexes. In 1952, the amount of fuel consumed per kilowatt-hour produced was 2.3 percent less than in 1951 and almost 12 percent less than in 1940. Those achieving good results in 1952 were GRES No 5 and No 10 of Mosenergo, Krasnogorskaya TETs, Kemerovskaya GRES, Sredneural'skaya GRES, and Zuyevskaya GRES.

In the first half of 1953, electric power stations managed to save one percent more fuel than planned. Despite the generally favorable showing in regard to utilization of fuel, the situation in a number of electric power stations was unsatisfactory. Nesvetay GRES, Shterovskaya GRES, Nizhneturinskaya GRES, Stalingradskaya GRES, and others permitted a considerable overexpenditure of fuel in this period.

Recent meetings of workers from the main operational administrations, drawing on the experience of the foremost electrical power stations, were devoted to pointing out sources for increasing economies in operation and measures for

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utilizing these sources. A great deal of attention was given to efficient utilization of high-pressure steam installations put into operation in recent years.

GRES No 10 of Mosenergo has achieved good results; the fuel consumption for high-pressure steam installations was 426 grams per kilowatt-hour in 1952 and 420 grams per kilowatt-hour in the first half of 1953. The fuel consumption for GRES No 16 of Mosenergo was 464 and 451 grams per kilowatt-hour, respectively.

However, there are some electric power stations with high-pressure equipment which are still not operating with sufficient efficiency. In this category belong Stalingradskaya GRES, where the fuel consumption was 507 grams per kilowatt-hour in the first half of 1953; Gor'kovskaya GRES with 501 grams per kilowatt-hour; Nesvetay GRES with 505 grams per kilowatt-hour; and Shterovskaya GRES with 502 grams per kilowatt-hour.

The failure to utilize the full capacity of the high-pressure equipment is a serious shortcoming in the operation of a number of high-pressure steam electric power stations.

In 1952, the average load of turbines of type VK-100 at Kurakhovskaya GRES was 50-70 percent. One reason for this situation is the slow mastery of the high-pressure equipment which has been newly put into operation. Frequently the newly installed equipment does not receive skilled servicing because measures to train personnel are not taken in time. Often small and easily fixed defects in the equipment are the source of large losses of heat.

As a result of these deficiencies, realization of planned efficiency indexes is dragging out over many years at a number of high-pressure steam electric power stations, and the economic advantages of steam with high parameters are not fully utilized. This situation exists, for example, at Kurakhovskaya GRES, Nesvetay GRES, and Gor'kovskaya GRES. The Yuzhno-Kuzbasskaya GRES is not mastering high-pressure equipment with sufficient speed either.

In a number of cases, because of the unsatisfactory operation of the pre-heaters, the temperature of the feed water is 10-20 degrees centigrade below the specified temperature (Kurakhovskaya GRES, Nesvetay GRES); in the majority of thermal electric power stations this difference is even greater as a result of high-pressure heaters (BIP-200 and BIP-350) being partially out of order. In 1952, the difference for GRES No 16 of Mosenergo was 20 degrees centigrade; for Leningradskaya GRES 2, 50 degrees centigrade; and for Yuzhno-Kuzbasskaya GRES, 50 degrees centigrade. Defects in high-pressure boiler equipment and in its operation are also causes of large heat losses.

The task of further reducing fuel consumption confronts not only the workers of high-pressure steam electric power stations, but also those of electric power stations with medium and low steam parameters. It would be a mistake to think that, inasmuch as the majority of such electric power stations have been in operation for many years, all the possibilities for further improving the efficiency indexes for the operation of equipment have been fully exhausted; experience does not show this to be the case. For example, in the first half of 1953 over 3% percent of the total saving on fuel was achieved by improving the operation of medium-pressure steam electric power stations.

Along with medium-pressure steam-condensing thermal electric power stations, which had a relatively low fuel consumption ratio in the first half of 1953 (GRES No 4 of Mosenergo, 420 grams per kilowatt-hour; Orekhovo-Zuyevskaya GRES, 488 grams per kilowatt-hour; Zuyevskaya GRES, 507 grams per kilowatt-hour), many electric power stations are still operating with higher fuel consumption ratios.

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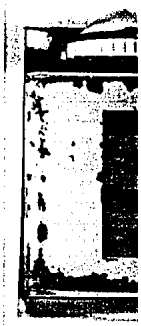

The experience of the best enterprises in effecting savings is still not being utilized sufficiently, with the result that the operating indexes for many aggregates are lower than for similar aggregates in the foremost electric power stations. The Technical Administration for Electric Power Stations must organize, with the support of VTI (All-Union Thermal Engineering Institute imeni Dzerzhinskiy) and ORGRES (Trust for Organization and Rationaliz[illegible] of Electric Power Stations), systematic generalization and dissemination of the experience of the foremost enterprises.

Recently some electric power stations have been experiencing difficulties in drawing up graphs for efficient distribution of loads between the turbines which are operating in parallel because the fuel characteristics of the new types of turbines are not known. The Technical Administration for Electric Power Stations must organize, with the aid of regulatory and scientific research organizations (ORGRES, VTI), the testing of new types of equipment to determine their fuel characteristics.(1)

Fuel Consumption Reduced at Kemerovskaya GRES and Kashirskaya GRES

The socialist competition between Kemerovskaya GRES and Kashirskaya GRES, which began in 1949, is still going on.

The two stations have approximately the same installed capacity. At Kashirskaya GRES 18 percent of the power is supplied by low-pressure equipment.

At the beginning of the competition, in 1948, the fuel consumption for electric power output at Kemerovskaya GRES was 0.535 kilogram per kilowatt-hour, and at Kashirskaya GRES, 0.503 kilogram per kilowatt-hour. Consumption of electric power for the station's own needs was 7.8 percent of the total output at Kemerovskaya GRES and 6.9 percent at Kashirskaya GRES.

At the beginning of the competition Kemerovskaya GRES was considerably behind Kashirskaya GRES in respect to efficiency indexes. As a result of the socialist competition Kemerovskaya GRES has achieved marked successes. In 1952, the fuel consumption was 0.507 kilogram per kilowatt-hour, 28 grams less than in 1948. In this same period the fuel consumption ratio at Kashirskaya GRES was reduced 20 grams.

At Kemerovskaya GRES the ratio of electric power consumption for the station's own needs in this same period was reduced 9.2% percent, so that in 1952 it amounted to 7.08 percent of the total output. Electric power consumption for the station's own needs was reduced 11.7 percent in this same period at Kashirskaya GRES.(2)

Reduction of Standard Fuel Consumption per Kilowatt-Hour

/The following table shows the reduction of standard fuel consumption per kilowatt-hour produced in the USSR from 1913 to 1952. Figures preceded by an X were expressed in percentages of 1913 consumption in the sources cited./

Year	Standard Fuel Consumption per Kilowatt-Hour (in kg)
1913	1.060 (3)
1926	X 0.940
1927	X 0.890
1928	0.880

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Year	Standard Fuel Consumption per Kilowatt-Hour (in kg)
1932	0.715
1940	0.596
1945	0.571
1950	0.539 (4)
1951	0.531 (5)
1952	0.519 (6)

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